

Except for *S. minutula*, the diploid sexual species of Japanese *Sphenomeris*, *S. biflora*, *S. chinensis* and *S. gracilis*, were recorded in Iriomote-jima Island and two of the latter were in Urauchi River area (Lin et al., 1990). The discovery of *S. minutula* in Urauchi River, Iriomote-jima Island, may offer valuable information to a systematic study of diploid species of Japanese *Sphenomeris* plants, and the origin of the reophyte. However, it is still pending to make a detailed investigation regarding distribution, populations, individuals of *S. minutula* in Urauchi River and making the conservation measure.

References

- Iwatsuki K. 1992. Ferns and Fern Allies of Japan. 311 pp. Heibonsha Publishers, Tokyo (in Japanese).
 — 1995. Pteridophyta. In: Iwatsuki K., Yamazaki T., Boufford B. E. and Ohba H. (eds.), Flora of Japan. Pteridophyta and Gymnospermae. I: 1–259. Kodansha, Tokyo.
 Kurata S. 1965. Notes on Japanese ferns (36). J. Geobot. 13: 98–101 (in Japanese).
 Japanese Environmental Agency 2000. Threatened Wildlife of Japan, Plant I, Vascular Plants, Red Data Book 2nd ed. Japan Wildlife Research Center, Tokyo (in Japanese).
 Lin S.-J., Kato M. and Iwatsuki K. 1990. Sporogenesis, reproductive mode, and cytotaxonomy of some species of *Sphenomeris*, *Lindsaea*, and *Tapeinidium* (Lindsaeaceae). Amer. Fern J. 80: 97–109.
 Nakaike T. 1982. New Flora of Japan Pteridophyte. 808 pp. Shibundo, Tokyo (in Japanese).
 奄美大島固有種のコビトホラシノブ *Sphenomeris minutula* は十数年前から生息地の住居川から姿が消え、レッドデータブック (植物 I) に IA (CR) 類の絶滅危惧種として記録されている。著者は2006年3月に沖縄県西表島の浦内川でコビトホラシノブの集団を発見し、細胞学的観察によって $n = ca. 49II$ の有性生殖二倍体であることを確認した。
 (Department of Biological Science,
 Faculty of Life and Environmental Science,
 Shimane University, 1060 Nishikawatsu-cho,
 Matsue-shi, Shimane, 690-8504 JAPAN
 E-mail: sjlin@life.shimane-u.ac.jp
 島根大学生物資源科学部生物科学科)

Devendra M. BAJRACHARYA^a and Krishna K. SHRESTHA^b: *Eria clausa* King & Pantl. (Orchidaceae), a New Record from Nepal

ネパール新産の *Eria clausa* King & Pantl. (ラン科) (D. M. バジラチャリア^a, K. K. シュレスタ^b)

The genus *Eria* Lindl. is one of the larger polymorphic genera of the family Orchidaceae. It has about 370 species in the world (Pearce and Cribb 2002).

During a revision of the genus *Eria* in the Himalayan region a species of *Eria* was found to be overlooked among the orchid species of Nepal. A specimen of *Eria clausa* King & Pantl. is deposited in Natural History Museum (BM) London (N. Wallich 7 from Nepalia in 1821) it was identified by Tuyama in 1977. Occurrence of *Eria clausa* in Nepal has not been mentioned (Hara et al. 1978, Banerji and Pradhan 1984, Press et al. 2000). Paudyal and Amatya collected a

specimen of *E. clausa* from Central Nepal in 1981 from Pharping/Sunderijal, Kathmandu Valley and reported here as new to Nepal. Gupta (1984) and Poudyal and Shakya (1984) covered a list of Kathmandu Valley including *E. clausa*: but description, illustration and citation of specimen of *E. clausa* was not made. Recently this species has been collected from Lumle, Pokhara valley. These specimens were also verified with the type specimens of *E. clausa* King & Pantl. (holotype CAL; isotype K). Therefore, we have described detailed description, illustration, citation of specimen and other relevant notes provided here, based on both speci-

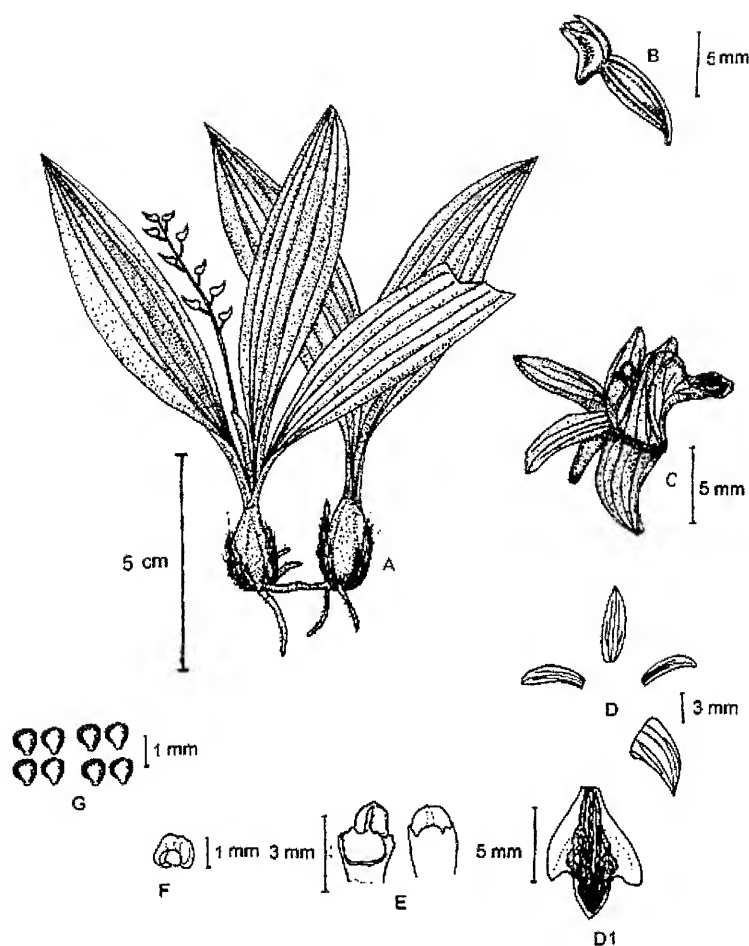


Fig. 1. *Eria clausa* King & Pantl. (Pantling 559, holotype, K) A: Habit. B: Single flower. C: Lateral view of flower. D: Sepals and petals. D1: Labellum. E: Column. F: Operculum. G: Pollinia.

mens (Wallich 7 from Napalia; and D. M. Bajracharya & A. Subedi 232 from Pokhara).

Eria clausa King & Pantl. in J. Asia. Soc. Beng. **65**: 121 (1896); in Ann. Bot. Gard. Calc. **8**: 121, pl.167 (1898) – Kränzlin in Engler, Pflanzenreich Hfl. **50**: 20 (1911) – Seidenfaden in Opera Bot. **114**: 169 (1992) – Hajra & Burma, Fl. Sikkim **2**: 67 (1996) – Chowdhery, Orch. Fl. Arunachal Prad.: 357 (1998) – Pearce & Cribb, Fl. Bhutan **3** (3): 371 (2002).

Type: SIKKIM, Sittong point, 2000 m, Feb. 1891, R. Pantling 559 (holotype–CAL !; isotype–K !).

Eria corneri Rchb. f. var. *clausa* (King & Pantl.) A. N. Rao in J. Econ. Taxon. Bot. **20** (3): 708 (1996).

Eria clausa J. J. Smith in Bull. Dep. Agric. Indes Neerl. **39**: 13 (1919).

Epiphytic herbs, 4–15 cm high. Rhizome ca. 2.5 × 0.5 cm, thick, jointed, smooth with few short membranous sheaths; 2–3 nodes are present in the rhizomatous segments.

Scaly leaves 2 in rhizome. Pseudobulbs 1.5–4 cm tall, 3–5 cm apart, ovoid or ellipsoid, blunt at apex, single node, bases clothed with fibrous sheaths, rugose when dry, Leaves 1–3, 4–15 × 2–2.5 cm, arising from pseudobulbs apex, elliptic-lanceolate, acute to acuminate, tapering both ends, membranous, petiolate, with 5-veins; petiole grooved, 0.8–2 cm long. Inflorescence 1 or rarely 2, arising from the pseudobulb apex, racemose, erect laxly, 5–10-flowered, shorter than leaves; peduncle, with 2 membranous sheathed at base, glabrous, 1.5–2.5 cm long; rachis 1.5–2.5 cm long, glabrous, zigzag, one or two from the top of pseudobulbs, each enveloped for more than half its length by a narrow convolute sheath; sheaths lanceolate, acute membranous. Floral bracts nearly obscurely obsolete, 0.4 × 2 mm, reduce to ring-like swelling at the base of ovary. Pedicel plus ovary longer than floral bracts, glabrous, 7–10 × 2 mm. Flower 0.8–1 cm across, pale greenish with brown streaks, partially closed, slightly shorter than the ovary. Sepals subsimilar dorsal sepal 6–10 × 3–4 mm, oblong-lanceolate, obtuse-subacute, glabrous 5-veined; lateral sepals oblong, 6–8 × 2–3 mm, oblong-lanceolate, falcate, acute, adnate to column foot and form mentum; mentum globose 5 mm long, 5-veins. Petals ca. 8 × 2–3 mm, slightly falcate, oblong, obtuse, thin, 3-veined. Labellum 9–10 × 6 mm, trilobed, oblong or obovate, lateral lobes obliquely rounded near the apex, ca. 7 × 2 mm, deflexed, the edge entire, terminal lobe broadly ovate, obtuse, 9–10 × 6 mm, short, caruncled, globose disc with 5–7 sinuous parallel lamellae raised from base to apex, lateral lamellae with undulately, arcuate at the base of terminal lobe. Column ca. 3 × 1 mm, long, straight, glabrous; column foot ca. 4 × 2 mm long, curved; clinandrium collar like, ca. 2 mm across; rostellum flattened, against the back of the cliandrium, ligulate; operculum ca. 1.8 × 1 mm, outer surface glabrous, inner

surface of operculum with four locules. Pollinia 8, broadly obovoid with glandular caudicle; visidium is simple and ellipsoid. Stigmatic cavity with two subglobular convexities inside its lower margin, ca. 0.5–1 mm long.

Distribution: Himalaya (Nepal, Sikkim, Bhutan, Arunachal Pradesh, Burma), China (Yunnan, Kwangsi) and Vietnam.

Specimens examined: **NEPAL**. Napalia, Wallich 7 (BM); Pharping/Sunderjal 1000–1800 m, 2037.12.15, Paudyal and Amatya 48 (TUCH); Kashkikot, Pokhara valley ca. 1300 m, 14 Sept. 1997, D. M. Bajracharya 47 (TUCH); Lumle, Pokhara valley, 1500 m, 10 March 1999, D. M. Bajracharya & A. Subedi 230 (TUCH); 2 Jan. 2001, A Subedi 447 (TUCH). **BHUTAN**. Without precise locality, Balakrishna 43039 (CAL). **BURMA**. Gamlan Myitkyina 2000 m, C. W. D. Kermod 17044 (K).

Elevation range: 1600–2800 m.

Etymology: From the Latin word ‘*clauses*’ (closed).

Flowering: February–May.

Note: King and Pantling (1898) suggested that *E. clausa* might be a cleistogamous form of *E. vittata* and considered as conspecific with *E. vittata*. *Eria clausa* is also closely related to *E. boniana* (Gagnepain) T. Tang & F. T. Wang and to *E. corneri* Reihb. f. Tang and Wang (1951), Lang and Tsi (1976) and Seidenfaden (1992) treated them as distinct species.

Averyanov (1994) treated *E. clausa* as a synonym of *E. corneri*. Rao (1996) suggested that *E. clausa* is a cleistogamous form of *E. corneri*. From the thorough examination of the materials of *E. corneri* it is clear that *E. corneri* has clustered pseudobulbs, where as *E. clausa* has well spaced pseudobulbs. Thus, *E. corneri* has been proposed here as the distinct species, not the synonym of *E. clausa*.

We acknowledge the U. K. Government’s Darwin Initiative (UK) for the support to visit different herbaria of the UK (BM, K, and E) Roy Vickery, Curator, The Natural

History Museum (BM), Philip J. Cribb, Curator, and Jeffery. J. Wood, Orchid Herbarium, (K), D. Chamberlain, Royal Botanic Gardens, (E) UK; and M. Sanjappa, Director, Botanical Survey of India (CAL) are thankfully acknowledged for allowing us to study herbarium specimens in their care. I am also thankful to Mr. A. M. Singh Bania, Associate Professor, Department of Botany, Tribhuvan University, Amrit Campus for providing laboratory facilities to carry out this work.

References

- Amatya G. 1982. Orchids of the Northern Mountain Range Forest of Kathmandu Valley and Their Distribution Analysis. M. Sc. Dissertation, Faculty of Science, Tribhuvan University, Kathmandu.
- Banerji M. L. and Pradhan P. 1984. The Orchids of Nepal Himalaya. pp. 248–268. J. Cramer, Germany.
- Gupta V. N. P. 1984. Orchids of Kathmandu Valley. In: Majpuria T. C. (ed.), Nepal Nature Paradise. pp. 226–234. White Lotus Co. Ltd., Bangkok.
- Hara H., Stearn W.T. and Williams L. H. J. 1978. An Enumeration of the Flowering Plants of Nepal. I: 30–58. British Museum (Natural History), London.
- Hooker J. D. 1890. The Flora of British India. 5: 667–858. Asford, Kent.
- King G. and Pantling R. 1898. The Orchids of Sikkim Himalaya. Ann. Roy. Bot. Gard. (Calcutta) 8: 1–342.
- Kranzlin F. 1911. Orchidaceae–Monadreae–Dendrobiinae 2. In: Engler A. (ed.), Das Pflanzenreich Hfl 50: 66.
- Lindley J. 1830–1840. The Genera and Species of Orchidaceous Plants. London.
- Poudyal G. 1982. Orchids of Southern Range of Kathmandu Valley. M. Sc. Dissertation, Faculty of Science, Tribhuvan University, Kathmandu.
- and Shakya S. R. 1984. Contribution to the orchid flora of Kathmandu Valley. J. Inst. Sc. Tech. 4: 63–72.
- Preace N. R. and Cribb P. J. 2002. The Orchids of Bhutan: The Flora of Bhutan 3(3): 371. The Royal Botanic Garden Edinburgh/Royal Government of Bhutan.
- Press J. R., Shrestha K. K. and Sutton D. A. 2000. Annotated checklists of the Flowering Plants of Nepal. pp. 215–216. The Natural History Museum, London.
- Seidenfedian G. 1982. Orchid Genera in Thailand X. *Trichotosia* Bl. and *Eria* Lindl. Opera Bot. 62: 157.
- 1992. Orchids of Indo-China. Opera Bot. 114: 169.

BM で標本調査を行っていたところ、ネパール産の *Eria clausa* King & Pantl. を見出した。最近になって、ネパール・ポカラ地域からも本種が得られた。本種は Amatya (1982) によって言及されているが、これは正式に報告されたものではなく、記載や標本の引用を伴っていなかった。そこで、詳しい記載を与え、図示し、引用標本を挙げ、本種をネパール新産の植物として正式に報告した。

(^aAmrit Campus, Tribhuvan University, Lainchour, Kathmandu, NEPAL
E-mail: dbajracharya@hotmail.com,
amritcampus@rtc.net.np

^bCentral Department of Botany,
Tribhuvan University, Kirtipur, NEPAL)

新潟県中越地震（2004年）の尾瀬ヶ原への影響—空中写真による予備観察（金井弘夫） Hiroo KANAI: Influence of an Earthquake to Ozegahara Moor, Central Japan—Preliminary Observation by Aerophotographs

Estimated intensity of the earthquake, “Chuetsu, 2004” (23 Oct. 2004), was “5 —” around Ozegahara moor, central Japan. Many unusually white-colored pond surfaces were observed on the aerophotographs taken on 17 Sept. 2005. The rate of white-colored ponds was 10.7 % of all 1,849 ponds. While the rate was

3.5 % on the photographs on 9 Oct. 1999 as an ordinary year. It is presumed that earthquake promoted separation of pond-bottom layer from the base. The gas produced by assimilation of water plants such as *Nymphaea* and *Nuphar* on the bottom and of underground bacteria made the bottom layer possible to come up to the surface.